IN THE CLAIMS

1. (original) An apparatus comprising:

a non-ferromagnetic compressor wheel of a turbocharger, the non-ferromagnetic compressor wheel having fins;

a permanent magnet positioned so as to induce eddy currents on the fins; and,

at least one magnetoresistor positioned with respect to the non-ferromagnetic compressor wheel and the permanent magnet so as to be magnetically biased by the permanent magnet and so as to sense rotation of the non-ferromagnetic compressor wheel.

2. (original) The apparatus of claim 1 wherein the permanent magnet has a North-South axis, and wherein the North-South axis is pointed at the non-ferromagnetic compressor wheel.

3. (previously presented) The apparatus of claim 1 wherein the permanent magnet and the magnetoresistor are housed within a housing having external threads, and wherein the housing is threaded into a wall near the non-ferromagnetic compressor wheel.

4. (original) The apparatus of claim 3 wherein the housing has a faceted portion arranged to receive a tool for turning the housing into the wall.

5. (previously presented) The apparatus of claim 1 wherein the permanent magnet and the magnetoresistor are housed within a housing having a screw receiving flange for fastening to a wall near the non-ferromagnetic compressor wheel.

6. (original) The apparatus of claim 1 wherein the permanent magnet abuts the magnetoresistor.

7. (original) The apparatus of claim 1 wherein the magnetoresistor is coupled to a comparator.

8. (original) The apparatus of claim 1 wherein the magnetoresistor produces pulses as the fins travel past the magnetoresistor, wherein the magnetoresistor is coupled to a pulse divider, and wherein the pulse divider divides the pulses produced by the magnetoresistor.

9. (original) The apparatus of claim 8 wherein the permanent magnet has a North-South axis, and wherein the North-South axis is pointed at the non-ferromagnetic compressor wheel.

10. (previously presented) The apparatus of claim 8 wherein the permanent magnet and the magnetoresistor are housed within a housing having external threads, and wherein the housing is threaded into a wall near the non-ferromagnetic compressor wheel.

11. (original) The apparatus of claim 10 wherein the housing has a faceted portion arranged to receive a tool for turning the housing into the wall.

12. (previously presented) The apparatus of claim 8 wherein the permanent magnet and the magnetoresistor are housed within a housing having a screw receiving flange for fastening to a wall near the non-ferromagnetic compressor wheel.

13. (original) The apparatus of claim 8 wherein the permanent magnet abuts the magnetoresistor.

14. (original) An apparatus comprising:

a non-ferromagnetic compressor wheel of a turbocharger, the non-ferromagnetic compressor wheel having fins;

a magnetic field sensor housing attached to a structure in proximity to the non-ferromagnetic compressor wheel;

a permanent magnet disposed within the magnetic field sensor housing and positioned so as to induce eddy currents on the fins; and,

an active magnetic field sensor disposed within the magnetic field sensor housing and positioned with respect to the non-ferromagnetic compressor wheel and the permanent magnet so as to be magnetically biased by the permanent magnet and so as to sense a magnetic field induced by the eddy currents to thereby detect rotation of the non-ferromagnetic compressor wheel.

15. (original) The apparatus of claim 14 wherein the permanent magnet has a North-South axis, and wherein the North-South axis is pointed at the non-ferromagnetic compressor wheel.

16. (original) The apparatus of claim 14 wherein the permanent magnet abuts the active magnetic field sensor.

17. (original) The apparatus of claim 16 wherein the permanent magnet has a North-South axis, and wherein the North-South axis is pointed at the non-ferromagnetic compressor wheel.

18. (original) The apparatus of claim 14 wherein the active magnetic field sensor is coupled to a comparator.

19. (original) The apparatus of claim 14 wherein the active magnetic field sensor produces pulses as the fins travel past the active magnetic field sensor, wherein the active magnetic field sensor is coupled to a pulse divider, and wherein the pulse divider divides the pulses by at least two.

20. (original) The apparatus of claim 19 wherein the permanent magnet has a North-South axis, and wherein the North-South axis is pointed at the non-ferromagnetic compressor wheel.

21. (original) The apparatus of claim 19 wherein the permanent magnet abuts the active magnetic field sensor.

22. (original) The apparatus of claim 21 wherein the permanent magnet has a North-South axis, and wherein the North-South axis is pointed at the non-ferromagnetic compressor wheel.

23. (original) The apparatus of claim 14 wherein the active magnetic field sensor comprises at least one giant magnetoresistive element.

24. (original) The apparatus of claim 14 wherein the active magnetic field sensor comprises at least one anisotropic magnetoresistive element.

25. (original) The apparatus of claim 14 wherein the active magnetic field sensor comprises at least one Hall effect sensing element.

26. (previously presented) A method of sensing rotation of a non-ferromagnetic compressor wheel of a turbocharger comprising:

inducing eddy currents in fins of the non-ferromagnetic compressor wheel;

sensing a magnetic field induced by the eddy currents by use of an active magnetic field sensor so as to produce pulses having a pulse rate dependent upon a speed at which the non-ferromagnetic compressor wheel rotates; and,

reducing the pulse rate so as to provide a consistent pulse rate regardless of the number of the fins of the non-ferromagnetic compressor wheel.

27. (original) The method of claim 26 wherein the reducing of the pulse rate comprises reducing the pulse rate by use of a divider.

28. (previously presented) The method of claim 26 wherein the inducing of eddy currents in fins of the non-ferromagnetic compressor wheel comprises inducing the eddy currents by use of a permanent magnet, wherein the permanent magnet has a North-South axis, and wherein

the North-South axis is pointed at the non-ferromagnetic compressor wheel.

29. (previously presented) The method of claim 26 wherein the inducing of eddy currents in fins of the non-ferromagnetic compressor wheel comprises inducing the eddy currents by use of a permanent magnet, and wherein the permanent magnet abuts the active magnetic field sensor.

30. (original) The method of claim 29 wherein the permanent magnet has a North-South axis, and wherein the North-South axis is pointed at the non-ferromagnetic compressor wheel.

31. (original) The method of claim 26 further comprising magnetically biasing the active magnetic field sensor.

32. (previously presented) The method of claim 31 wherein the inducing of eddy currents in fins of the non-ferromagnetic compressor wheel comprises inducing the eddy currents by use of a permanent magnet, wherein the magnetically biasing of the active magnetic field

comprises magnetically biasing the magnetic field by use of a permanent magnet, and wherein the active magnetic field sensor is biased and the eddy currents are induced by the same permanent magnet.

33. (original) The method of claim 26 wherein the active magnetic field sensor comprises at least one giant magnetoresistive element.

34. (original) The method of claim 26 wherein the active magnetic field sensor comprises at least one anisotropic magnetoresistive element.

35. (original) The method of claim 26 wherein the active magnetic field sensor comprises at least one Hall effect sensing element.

36. (previously presented) The method of claim 26 further comprising storing an actual maximum compressor speed sensed by the active magnetic field sensor.